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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,441	01/21/2004	Christian Buchler	RCA89,866	3041

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EXAMINER
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PATEL, GAUTAM

ART UNIT	PAPER NUMBER
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2656

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/761,441

Applicant(s)

BUCHLER ET AL.

Examiner

Gautam R. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**Response to Amendment:**

1. This is in response to amendment filed on 2/10/06.
2. Claims 1-18 remain for examination.

**NOTES/REMARKS**

3. It is noted that the Applicants have decided not to correct the language in the previous paper regarding Buchler [U.S. patent 6,266,305] being commonly assigned at the time of invention. Thus disqualifying 305, and thus may be making claims allowable over the prior art of record as suggested by the Examiner see previous action paragraph 15].

**OBJECTION TO CLAIMS**

4. Claims 1-18 are objected for the following reasons.

The amendment filed 2/10/06 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: “binary variable delay element” is not disclosed at all in the specification. Specification only discloses units 26X and 26Y. However these units are only described as “analog delay elements”, not binary variable delay elements. There are also digital delay elements, but no binary elements at all. Also a waveform-preserving element does not exist at all.

As matter of fact word “binary” is not found at all in the specification much less “binary variable delay element”. It also not clear what these binary elements are and how and why they are being used

Applicant is required to cancel the new matter in the reply to this Office Action.

**Claim Rejections - 35 U.S.C. § 112**

5. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it

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is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-18 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

It is noted that “binary variable delay element” is not disclosed at all in the specification at all. Specification only discloses units 26X and 26Y. However these units are only described as “analog delay elements”, not binary variable delay elements [specification page 8, lines 17-18]. Also “digital variable delay elements” are disclosed but not the so called binary variable delay element. As a matter of fact word “binary” itself is not found at all in the specification much less “binary variable delay element”. It also not clear what these binary elements are and how and why they are being used.

Also wave-form-preserving element does not exist at all. Even word “waveform” does not exist in the original specification.

7. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-18 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18, lines 11 & 17-18 is confusing and unclear. It is not clear what the binary variable delay element is and why it is arranged between the four quadrant detector and one of the converters. Rest of the claims has same problem. Line 13 has waveform-preserving element. It not clear what this is and who this is implemented.

NOTE: For examination purposes it assumed that typographical error might have been made. The claims are examine as if this an analog delay element as explained in the specification.

### **Claim Rejections - 35 U.S.C. § 103**

8. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Buchler et al., US. patent 6,266,305 (hereafter Buchler) in view of Milton et al., US. patent 3,659,229 (hereafter Milton).

As to claim 1 Buchler, discloses the invention as claimed [see Figs. 1-10], including a tracking device, a four quadrant detector, and delay elements comprising:

a tracking device [fig. 1, unit 13];

a four-quadrant detector [fig. 1, unit 5];

two summation points [fig. 1 first summation point 15 and second summation point 16];

and

a phase detector [fig. 1, unit 14] for tracking in accordance with a differential phase detection method, said phase detector comprising converters [fig. 1, unit 19 & 19'] and a phase comparator [fig.1, unit 20], and

variable delay elements [fig. 1, units 26A, 26B, 26C and 26D] that can be set by a control device [fig. 1, unit 24; control device], wherein

at least one of said variable delay elements is arranged between one of the said converters and said phase comparator and at least one of said variable delay elements arranged between said four-quadrant detector and summation point, wherein no variable delay element is arranged between said four quadrant detector and one of said converters [col. 5, line 49 to col. 6, line 43];

Buchler discloses all of the above elements, including delay elements in proper places and summation points as claimed. In addition, Buchler implies that he has both analog and digital delay elements. He is doing that by clearly disclosing that that the delay elements 26 [26A, 26B etc.] are controlled via four digital-to-analog converters, or advantageously, in a directly digital manner. [col. 14, lines 28-40]. In other words, Buchler clearly indicates that his system can work with BOTH analog and digital delay elements and he also indicates advantages of using either one of them in his system. If one needs analog variable delay elements, his system

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does not use analog-to-digital converter, and if system needs digital delay elements than one can simply use analog-to-digital converter in front of variable digital delay elements [as presently shown by Buchler].

It should also be pointed out that Buchler is controlling phase and amplitude exactly as the Applicants disclosure. Buchler is silent about specific element [i.e. analog or digital] in a specific place and Buchler does not disclose that at least one of said delay elements is an analog delay element. Buchler discloses delay elements without qualifying them to the type of elements.

However Milton clearly teaches that analog and digital delay elements are well known in the art for improvement of the system performance and for multi-step attenuation when desired (see col. 5, lines 25-49). Milton also clearly teaches that analog and digital delays are interchangeable and one can easily be converted into another type by use of well know analog-to-digital converter [col. 5, lines 15-48; Milton].

One of ordinary skill in the art at the time of invention would have been motivated to use either type of delay elements depending upon system requirement such as multi-step attenuation. Therefore, it would have been obvious to one ordinary skill in the art, at the time of invention to have used variable analog and digital delay in Buchler's system as taught by Milton in order to provide proper variable delays for proper functions with the help of digital-to-analog converter that is already being taught by Buchler [col. 14, lines 28-40].

9. The aforementioned claim 2, recites the following elements, inter alia, disclosed in Buchler:

respective digital delay elements of variable delay elements are assigned to the summation points, and in that a switching device is present for the purpose of connecting one of the digital delay elements to an output of an offset determining device [col. 5, line 49-65 and col. 9, line 49 to col. 10, line 5].

10. The aforementioned claim 3, recites the following elements, inter alia, disclosed in Buchler:

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a switching device [fig. 1, units 19 and 19'] is present for the purpose of inserting a digital delay element of variable delay elements between one of the summation points and the phase comparator [col. 6, line 51 to col. 7, line 29].

11. The aforementioned claim 4, recites the following elements, inter alia, disclosed in Buchler:

a switching device is present for connecting two of the variable detector elements of the four-quadrant detector to respective analog delay elements [col. 9, line 49 to col. 10, line 41].

12. The aforementioned claim 5, recites the following elements, inter alia, disclosed in Buchler:

that an interference signal generating device is present, whose output is connected to the tracking device and to a first input of the control device [fig. 1, unit 24], whose second input is connected to the output of the phase comparator [fig. 1, unit 20] [col. 6, line 49 to col. 7, line 29].

13. The aforementioned claim 6, recites the following elements, inter alia, disclosed in Buchler:

the control device has a comparison device, at whose inputs the output signal of the phase comparator and the output signal of the interference signal generating device are present and whose output signal serves for setting at least one analog delay element of the variable delay elements [col. 5, lines 49-65; col. 9, line 1-25 and col. 9, lines 49-63].

14. The aforementioned claim 7, recites the following elements, inter alia, disclosed in Buchler:

a control output, of the control device, at which an output signal is present, is assigned a circuit block, which determines at least one of absolute value and sign of the signal present at the control output [col. 9, line 1-25 and col. 9, lines 49-63].

15. The aforementioned claim 8, recites the following elements, inter alia, disclosed in Buchler:

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a converter [fig. 1, unit 19] is connected between a digital delay element of the variable delay elements and one of summation points [col. 6, line 58 to col. 7, line 29].

16. The aforementioned claim 9, recites the following elements, inter alia, disclosed in Buchler:

the control device and at least some of the variable delay elements are realized on an integrated circuit [col. 2, lines 58-67].

17. The aforementioned claim 10, recites the following elements, inter alia, disclosed in Buchler:

the control device has an offset determining device [fig. 1, unit 48], at whose input the output signal of the phase comparator is present and whose output signal serves for setting at least one digital delay element of the variable delay elements [col. 9, lines 1-25 and col. 9, line 64 to col. 10, line 41].

18. As to claims 11-18, they are duplicate claims corresponding to claims 2-9 respectively and they are therefore rejected for the same reasons set forth in the rejection of claims 2-9 respectively, supra.

19. Applicant's arguments with respect to above claims have been considered but are moot in view of the new grounds of rejection.

20. A search based on the best understanding of the claims has been made to find the most pertinent art, but no statement about invention will be appropriate at this time regarding the allowableness of claims 1-18 and old art rejection will be maintained in this office action regarding the claims 1-18, due to the speculation required to interpret the claims because of their indefiniteness under 35 U.S.C. 112, 1st and 2nd paragraphs as noted above (see In re Steele, 134 USPQ 292).

21. Applicant's amendment necessitated the new grounds of rejection presented in this office action. Accordingly, THIS ACTION IS MADE FINAL. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).



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A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

#### **Contact information**

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is 571-272-7625. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2600) where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Dwayne Bost, who can be reached on (571) 272-7023.

Any inquiry of a general nature or relating to the status of this application should be directed to the Electronic Business Center whose telephone number is 866-217-9197 or the USPTO contact Center telephone number is (800) PTO-9199.



**GAUTAM R. PATEL  
PRIMARY EXAMINER**

Gautam R. Patel  
Primary Examiner  
Group Art Unit 2627

March 5, 2006